(c) whether an institutional mechanism has been established to monitor the trends and variability of glaciers and study the impact of changes on the hydrological regime in the region; and

(d) if so, the details thereof?

THE MINISTER OF STATE OF THE MINISTRY OF ENVIRONMENT AND FORESTS (SHRI JAIRAM RAMESH): (a) and (b) Government has no proposal to bring out a White Paper on the current state of scientific knowledge on the Himalayan Glaciers. However, a Discussion Paper on Himalayan Glacier has been published.

(c) and (d) A new research centre on Himalayan Glaciology has been established at Wadia Institute of Himalayan Geology, Dehradun. Guidelines and best practices for Governance for Sustaining Himalayan Eco-system (G-SHE) has been developed and shared with all State Governments in the Himalayan region.

Restoration of mangrove forests

2649. SHRI S.S. AHLUWALIA: Will the Minister of ENVIRONMENT AND FORESTS be pleased to state:

(a) whether Government is aware that mangrove forests in most of the places along the east coast are being destroyed especially due to damming of rivers in course of their flowing into the Bay of Bengal, in an *adhoc* and unplanned manner;

(b) if so, the steps being taken, if any, for restoration and strengthening mangrove forests along the east coast line;

(c) whether Government has carried out any survey of all mangrove forests, in order to identify those which are adversely affected due to damming of rivers; and

(d) if so, the findings thereof; and if not, the reasons therefor?

THE MINISTER OF STATE OF THE MINISTRY OF ENVIRONMENT AND FORESTS (SHRI JAIRAM RAMESH): (a) to (d) Mangroves of the East Coast of India are in the deltaic regions of river systems such as Cauvery in Tamil Nadu; Krishna and Godavari in Andhra Pradesh; Brahmani, Baitarani and Mahanadi in Orissa; and Ganges in West Bengal. There is no study which singles out damming of rivers leading to destruction of mangroves. However, some studies conducted by M.S. Swaminathan Researh Foundation indicate a change in mangrove species composition in the East Coast region due to reduction in periodicity and quantity of freshwater reaching the mangrove environment as mangroves require an optimal mix of fresh and salt water for growth and perpetuation. As per the biennial assessment done by Forest Survey of India since 1987 using remote sensing, the mangrove forests in the country have not undergone any significant change. Most States have registered an increase in mangrove cover. Details are given in the Statement *(See* below).

According to India State of Forest Report 2009, the mangrove cover in the country is 4,639 sq km. Compared with 2005 assessment, there has been an increase of 58 sq km in mangrove cover. This is mainly because of the plantations and protection measures in the States of Gujarat, Orissa, Tamil Nadu and West Bengal. Decrease in mangrove cover in Andamans & Nicobar Islands is attributed to after effects of tsunami.

The Government seeks to sustain mangroves in the country by both regulatory and promotional measures. The Coastal Regulation Zone Notification (1991), as amended subsequently, recognizes the mangrove areas as ecologically sensitive and categorizes them as CRZ I(i), which implies that these areas are accorded protection of the highest order. Under the promotional measures, the Government has identified 38 mangrove areas on a country wide basis for intensive conservation and management. Of these, 16 are in the East Coast Region. During the last three financial years, *i.e.* 2006-07, 2007-08, and 2008-09; a sum of Rs 418.77 Lakhs to West Bengal; Rs. 176.86 Lakhs to Orissa; Rs. 51.52 Lakhs to Andhra Pradesh; and, Rs. 209.05 Lakhs to Tamil Nadu were released under the Centrally Sponsored Scheme for conservation and management of mangroves.

Statement

State/UT wise Mangrove Cover

(area in km^2)

Sl. No.	State/UT	Assessment Year										
		1987	1989	1991	1993	1995	1997	1999	2001	2003	2005	2007
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Andhra Pradesh	495	405	399	378	383	383	397	333	329	354	353
2	Goa	0	3	3	3	3	5	5	5	16	16	17
3	Gujarat	427	412	397	419	689	901	1031	911	916	991	1,046
4	Karnataka	0	0	0	0	2	3	3	2	3	3	3
5	Kerala	0	0	0	0	0	0	0	0	8	5	5
6	Maharashtra	140	114	113	155	155	124	108	118	158	186	186
7	Orissa	199	192	195	195	195	211	215	219	203	217	221
8	Tamil Nadu	23	47	47	21	21	21	21	23	35	36	39
9	West Bengal	2,076	2,109	2,119	2,119	2,119	2,123	2,125	2,081	2,120	2,136	2,152
10	A&N Islands	686	973	971	966	966	966	966	789	658	635	615
11	Daman & Diu	0	0	0	0	0	0	0	0	1	1	1
12	Puducherry	0	0	0	0	0	0	0	0	1	1	1
	TOTAL	4,046	4,255	4,244	4,256	4,533	4,737	4,871	4,482	4,448	4,581	4,639